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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/802,506

03/17/2004

Subramanian Bhaskaran

C-7230

8914

23631

7590

08/31/2006

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EXAMINER

PUTTLITZ, KARL J

ART UNIT

PAPER NUMBER

1621

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/802,506

Applicant(s)

BHASKARAN ET AL.

Examiner

Karl J. Puttlitz

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 12-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/17/2004</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-11 drawn to an integrated process for the preparation of acetic acid and vinyl acetate classified in class 562 subclass 512+.
- II. Claims 12-20 drawn to an integrated system for producing acetic acid and vinyl acetate classified in class 422 subclass 129+.

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the instant process can be conducted with another process such as those integrated processes discussed on page 3 of the specification.

Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

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Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with James Mullen on 8/22/2006 a provisional election was made with traverse to prosecute the invention of Group 1, claims 1-11. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 102, 103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 2001/90042, as evidenced by counter part U.S. Patent No. 6,790,983 to Zeyss et al. (Zeyss).

The rejected claims are drawn to an integrated process for the production of acetic acid and vinyl acetate comprising the steps: (a) producing in a first reaction zone a first product stream comprising acetic acid; (b) contacting in a second reaction zone an acetic acid reaction stream comprised of at least a portion of the acetic acid from the first product stream with an oxygen-containing gas in the presence of a catalyst to produce a second product stream comprising vinyl acetate monomer; (c) directing at least a portion of the second product stream to a purification section to purify at least a portion of the vinyl acetate in the second product stream; and (d) removing heat from at least a portion of the first product stream and providing at least a portion of the heat removed from the first product stream to at least one of the acetic acid reaction stream and the purification section for purifying the vinyl acetate.

The rejected claims also cover those embodiments wherein the first product stream is produced by contacting in the first reaction zone a gaseous feedstock comprising a hydrocarbon selected from the group consisting of ethylene, ethane, and mixtures thereof with an oxygen-containing gas in the presence of a catalyst.

With regard to the above embodiments, Zeyss teaches an integrated process for the production of vinyl acetate which comprises the steps:

(a) contacting in a first reaction zone a gaseous feedstock comprising essentially ethane with a molecular oxygen-containing gas in the presence of a catalyst to produce a first product stream comprising acetic acid and ethylene;

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(b) contacting in a second reaction zone the first gaseous product stream with a molecular oxygen-containing gas in the presence of a catalyst to produce a second product stream comprising vinyl acetate;

(c) separating the product stream from step (b) and recovering vinyl acetate from said product stream from step (b). See column 2, lines 15-27.

The rejected claims cover a step of removing heat from at least a portion of the first product stream and providing at least a portion of the heat removed from the first product stream to at least the acetic acid reaction stream. Zeyss fails to explicitly recite this step. However, as required by the claims, the acetic acid reaction stream is the same as the first product stream (see claim 1: "an acetic acid reaction stream comprised of at least a portion of the acetic acid from the first product stream").

Accordingly, any heat present in the first product stream is necessarily transferred to the acetic acid reaction stream, and is therefore an inherent part of the process of Zeyss.

Accordingly, the rejected claims are anticipated by Zeyss for the reasons above, or, at least prima facie obvious since those of ordinary skill would expect that a portion of the heat in the product stream would be transferred to the acetic acid stream.

Claims 3-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeyss in view of *Kirk-Othmer Encyclopedia of Chemical Technology* Copyright © 2002 Article Online Posting Date: July 19, 2002 pp. 115-136 (Kirk Othmer).

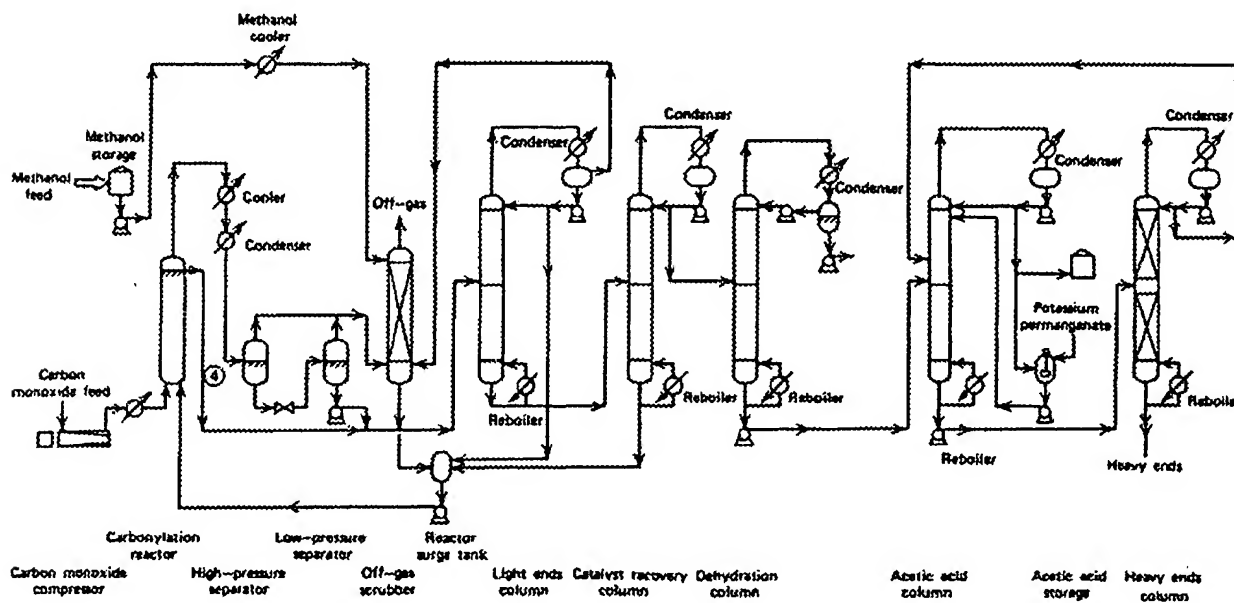
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The rejected claims cover those embodiments wherein the first product stream is produced by carbonylation of an alkyl alcohol with carbon monoxide in a liquid reaction medium in the first reaction zone.

The rejected claims also cover those embodiments wherein the heat removed from at least a portion of the first product stream is transferred to a steam condensate stream which is used to provide heat to at least one of the acetic acid reaction stream and the purification section for purifying the vinyl acetate.

The rejected claims also cover different aspects of handling the condensate stream.

With regard to the above embodiments, Kirk Othmer teaches a carbonylation process for preparing acetic acid, including a steam condensate and flash distillation:



See pages 123-125.

Those of ordinary skill would have been motivated to modify the disclosure of Zeyss to include the carbonylation and steam condensate steps required by the claims since Kirk Othmer teaches that these are common and efficient means for treatment of an acetic acid product stream, which would be appropriate for the integrated process on Zeyss. Therefore, the rejected claims are prima facie obvious in view of the combination of Zeyss and Kirk Othmer since the combination of these references teaches or suggest the elements of the rejected claims, with a reasonable expectation of success.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl J. Puttlitz whose telephone number is (571) 272-0645. The examiner can normally be reached on Monday to Friday from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman K. Page, can be reached at telephone number (571) 272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Karl J. Puttlitz  
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